

1 Q. Re page B-38: Indicate the expected life of the existing line protection relays,  
2 whether there are any older relays currently in use in Hydro's system and  
3 what the effect would be of delaying this project one to two years.

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6 A. The existing line protection relays included in the Springdale, Indian River &  
7 Howley 138kV Protection Upgrade Project Summary are the Westinghouse  
8 KD-4, KD-10, KD-41 and KD-11 relays. It is difficult to determine the  
9 expected life of these line protection relays but they are over 25 years old  
10 and this type of relay has a problem with a capacitor leaking. When it leaks,  
11 the relay will not be able to maintain its setting and replacement of the relay  
12 is required, as it will jeopardize the protection of the transmission line. Since  
13 it is the older type of technology, the relay does not alarm to indicate that a  
14 problem has occurred. This problem may only be discovered during regular  
15 maintenance checks (every six years) unless a relay misoperation or relay  
16 failure to operate for a transmission line fault occurs.

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18 KD relays are the oldest distance relays currently in use in Hydro's system.  
19 It is possible that one of these relays might misoperate or not operate for a  
20 legitimate fault during this period, resulting in a loss of supply.

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22 Newer relays also offer enhanced performance which permits the detection  
23 of fault types, such as high resistance, that the older relays cannot detect.